

TITLE: METHOD AND MEANS FOR STUFFING NATURAL CASINGS
WITH SAUSAGE EMULSION

BACKGROUND OF THE INVENTION

5 Traditionally, sausages have been made by filling the
natural intestines of sheep or other animals with a sausage
product whereupon the filled natural casing was formed into
links for cooking. In more modern times, sausages are
predominantly made by introducing an emulsion into an
10 artificial casing, which encases the sausage material
through linking and preliminary cooking. Machines for
making sausages with artificial casings have a high volume
capability (up to 30,000 sausages per hour). Efforts have
been made to use these high-speed machines with natural
15 casings. However, because of the nature of the natural
casings including their relatively shorter and variable
length and non-uniform diameter, modern sausage encasing
machines have not achieved the volume and capacity with
natural casings as they do with artificial casings.

20 U.S. Pat. No. 6,585,580 to Hergott et al. discloses a
method and means for stuffing natural casings with sausage
emulsion. Hergott et al. teaches the use of a slidable
collar 28 that works in conjunction with a sensor 24A to
position a natural casing 32 about the stuffing tube 14. As
25 the natural casing 32 is stuffed with emulsion, collar 28
advances the natural casing 32 towards the twisting
mechanism 16, which prepares the natural casing 32 for
linking.

One disadvantage with conventional methods of stuffing
30 natural casings with sausage emulsion, such as that taught
by Hergott et al. above, is that the natural casing, as it
is being stuffed with emulsion, does not easily advance
towards the twisting mechanism. Typical methods will push

the natural casing towards the twisting mechanism, which may cause the natural casing to become shirred as it approaches the twisting mechanism.

It is therefore a principal object of this invention to
5 provide a method and a machine for encasing sausages whereby the natural casing is uniformly shaped when stuffed with the sausage emulsion.

A further object of this invention is to provide a method and a machine for encasing sausages whereby the
10 natural casing is moved longitudinally on the stuffing tube by a textured belt mounted adjacent to the stuffing tube.

These and other objects will be apparent to those skilled in the art.

15 BRIEF SUMMARY OF THE INVENTION

A method of stuffing natural casings with emulsion involves placing a textured continuous belt transversely with respect to a longitudinal axis of a stuffing tube. The textured belt engages with the natural casing on the
20 stuffing tube and distributes a compressive force on the outer surface of the casing. The textured belt then rotates to advance the natural casing into engagement with a twisting mechanism, which is downstream of the stuffing tube and prepares the casing for linking. The textured belt
25 ensures that the natural casing is evenly fed into the twisting mechanism.

A machine includes the foregoing components to accomplish the method.

BRIEF DESCRIPTION OF THE DRAWINGS

Fig. 1 is a plan view of a sausage making machine showing the conventional components, as modified by this invention;

5 Fig. 2 is a partial side view of the present invention showing the forward end of the stuffing tube and the textured belt assembly adjacent the twisting mechanism.

DESCRIPTION OF THE INVENTION

10 The term "emulsion" as used herein includes meat or any other edible substance.

With reference to Fig. 1, a conventional sausage making machine 10 has a frame 11, a pump 12 connected to a source of emulsion (not shown), a hollow meat stuffing tube 14 with
15 discharge end 14A, a twisting mechanism 16, a linking mechanism 18, a discharge horn 20, and a conveyor 22.

With reference to Figs. 1 and 2, a textured belt assembly 24 is disclosed which rotates to advance natural casing 26 about stuffing tube 14. Textured belt assembly 24
20 is mounted adjacent and parallel to the stuffing tube 14. Textured belt assembly 24 moves casing 26 past discharge end 14A of stuffing tube 14 and through inner bore 28 of twisting mechanism 16.

Textured belt assembly 24 includes a continuous belt 30
25 with a plurality of grooves 32. Continuous belt 30 loops around rollers 34 and 36. Roller 34 rotates about axle 38, and roller 36 rotates about axle 40. Axles 38 and 40 may be fixed such that rollers 34 and 36 and, therefore, continuous belt 30 remain in the same position relative to the stuffing
30 tube 14. Alternatively, axle 40 may not be fixed, allowing textured belt assembly 24 to rotate about axle 38. Textured

belt assembly 24 is driven by a servo motor (not shown), as is common in the art.

In operation, grooves 32 of the continuous belt 30 engage with the outer surface of natural casing 26. Through this engagement, textured belt assembly 24 can move casing 26 towards twisting mechanism 16. Specifically, the counterclockwise rotation of rollers 34 and 36 drive continuous belt 30 in a counterclockwise direction. Grooves 32 engage with casing 26, advancing it towards twisting mechanism 16. Textured belt assembly 24 moves natural casing 26 beyond discharge end 14A, where sausage emulsion is injected into the casing 26. Textured belt assembly 24 then drives filled casing 26 through inner bore 28 of twisting mechanism 16. Where axle 40 is not fixed, textured belt assembly 24 can rotate about axle 38. As such, the roller 36 is free to follow the height with respect to stuffing tube 14 dictated by the thickness of shirred natural casing 26.

It is therefore seen that by the use of a textured belt, this invention permits the smooth advancement of natural casings about the stuffing tube and towards the twisting mechanism during the emulsion stuffing process.